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Student Experiences of the Use of a Marketing Simulation Game

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Abstract

While a substantial amount of research has been conducted into the use of simulation games in business and marketing education, little of this has focused on the student experience. In this project we conducted a survey of student experiences of the use of a marketing simulation ('The Marketing Game!') at two universities in the UK. The respondents to the survey questionnaire were final year marketing students who had recently completed a module in marketing strategy on which 'The Marketing Game!' was used. The overall purpose of the study is to understand better how students perceive and respond to simulation games, in order to make more effective use of simulations in the curriculum. The design of the study enables us to analyse the comparative responses of different categories of students (different demographic categories, and other categories thought to be relevant including prior educational qualifications and work experience), thus providing advice to marketing educators on the likely responses to simulation games of different groups of students within a diverse student body.

Key words: Marketing education; business simulation; marketing games

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Student Experiences of the Use of a Marketing Simulation Game

Introduction

Marketing educators have long accepted that they cannot rely solely on didactic methods; the nature of the subject necessitates that, in addition to addressing a body of knowledge through lectures and reading, students must engage in active learning (Wright, Bitner and Zeithaml, 1994; Smith and Van Doren, 2004). Several different pedagogic techniques are harnessed for this purpose, including historical case studies, live case studies (where students develop the case studies themselves), real-world research and consultancy projects, in-basket exercises, role playing, and educational drama (Daly, 2001; Kennedy, Lawton and Walker, 2001; Baruch, 2006, Pearson, Barnes and Onken, 2006). The simulation game is a widely used active learning technique. The characteristics of simulation games include a simulated competitive environment in which rival companies make periodic decisions; the decisions provide the inputs to a software package that produces management information (such as profit & loss statements and analyses of sales patterns) which provides the basis for the next round of decision-making. What differentiates the simulation game from most other active learning techniques is that by its very nature it mimics certain aspects of the business world that are otherwise very difficult to bring to the classroom, notably working to deadlines, often in teams, to make concrete decisions under competitive conditions, and then having to live with the consequences of those decisions.

In addition, team-based simulations allow students to practice specific skills valued by employers – communication, problem solving, critical thinking, and analysis of both verbal and financial data - within an environment that allows for failure to be redressed, and for alternative strategies to be employed without the possibility of long- term punitive consequences. Given the degree of complexity, games encourage students to integrate concepts successfully within their own discipline and to think cross-functionally, the latter being an outcome that is more difficult to achieve through other learning methods (Chakravorty & Franza, 2005).

In the project described here we investigated undergraduate student experiences of the use of a marketing simulation game ('The Marketing Game!'). The purposes of this paper are to explain the background, rationale, research objectives, research methods for the project, and to present and discuss findings from the survey concerning student perceptions of learning methods generally and of 'The Marketing Game!' (henceforth 'TMG!') in particular. In the following section, we examine prior studies of simulation games, with a focus on their use in marketing education specifically. The subsequent section explains the research objectives and the research methods employed in the present study. Following this, we move on to discuss the results from the student survey, and to draw conclusions for educational practice.

Prior research into the use of business and marketing simulation games

Business simulation games have been in use in higher education for at least 50 years, with the first documented use at the University of Washington in 1957 (Faria, 2006). By 1998, up to 97.5% of all accredited business universities in the United States were using business games as a learning tool. Marketing simulation games are particularly popular and Faria and Wellington (2004) found that 64.1% of 1,085 faculty members in American Universities were using games with a focus on marketing. In a more limited and earlier study carried out in the U.K, Burgess (1991) found that computerised simulation game were used in 92% of the 272 business and management departments that responded to his survey.

The research studies that proliferated as the usage rate of games increased can be categorised into four main themes: the educational value of simulation games; the relative merit of simulation games compared with other learning methods; the external and internal validity of business games; and how best to implement and use them. Although there is limited research that specifically addresses the student experience or student feelings around games, many researchers also remark on how students perceive the use of simulation games and on the general positive feelings that they experience. Our study was primarily concerned with student perceptions of the *educational value* and of the *implementation method* of the simulation game, and so our discussion of prior research will focus on these two themes.

Research into *the educational value* of games suggests that they give participants a “valid representation of real world issues facing managers” (Wolfe and Roberts, 1993, p22) including enhanced skills in strategy formulation, analysis of multiple variables, integration of a range of marketing concepts and tools, manipulating financial concepts, problem-solving, communication and team-work (Keys and Wolfe, 1990; Gopinath and Sawyer, 1999; Jennings, 2001; Zantow, Knowlton and Sharp 2005; Faria, 2006). Other studies have investigated the value of games in improving student outcomes. Faria (2001) reported on 79 comparisons between the use of simulations and other teaching methods including cases, readings, and lectures. End of class exams demonstrated that students who had engaged in the simulation performed better on average than those who had been taught using other methods. Drea, Tripp and Stuenkel (2005) found a statistically significant difference in performance on post-game assessment between those who had participated in a marketing game and those who made up the control group. Of the eight administrations of the experiment, the researchers found consistent evidence of a positive effect on student learning. Cook and Swift (2006) drew similar conclusions in a study linked to learning outcomes on a sales management simulation. The researchers were able to demonstrate high correlations between statements such as the game “improved analytical skills”, “improved problem solving”, “helped learn concepts”, “applied what was learned in class”, and “taught fundamentals”. In comparison with learning from the textbook, participants perceived the simulation to be considerably more effective in “teaching course concepts, promoting the development of high level skill sets, and providing an overall positive educational experience”.

Most authors agree that active learning approaches including simulation games need to be underpinned with knowledge gained from more traditional methods such as lectures and readings (Livingstone and Lynch, 2002; Laverie, 2006), and that for successful learning to occur, students must also have the opportunity to reflect systematically on their experience and to grasp how it connects to the course content and learning outcomes (Herz & Merz, 1998; Hatcher & Bringle, 2000; Young, 2002, Peters & Vissers, 2004). So successful implementation of a simulation game requires prior lectures and readings to equip students with the necessary conceptual knowledge, regular reminders of how the game fits into the learning outcomes, an effective post-simulation debriefing exercise, and assessment tools used both during and after the game to allow for the reflection needed to solidify and make sense of their learning.

These additional pillars of the simulation experience not only lead to deep learning, but are also important in the affective domain. Although not a key theme in prior research, many authors have reported on the positive emotions that students experience during simulation games (Coleman, 1966, Brenenstuhl 1975; Orbach, 1979; Szafran & Mandolini, Bredemeier & Greenblat, 1981). Research into the advantages of business games compared to other educational methods indicates greater levels of student enjoyment and commitment than with case studies, action learning projects, lectures or readings (Low, 1980; Malik and Howard, 1996; Jennings, 2001). Fripp (1994) argued that students

find simulations to be both stimulating and enjoyable experiences and that this enhances their learning. In their research into why people use business games, Gilgeous and D'Cruz (1996) found that keeping participants motivated and interested was a key reason, and games that are best at encouraging motivation are those that are deemed by students to be both interesting and "fun". Furthermore, effective use of simulation games can lead to positive behavioural changes, such as enhancing students' ability to get organised, adapt to new tasks, resolve conflicts and work effectively in groups/teams (King, 1997, Certo & Newgren, 1977, Teach & Govahi, 1988). In terms of behavioural adaptations, Solomon (1993) found that simulations can also heighten self-awareness and allow students to examine their own behaviour, particularly when working within a group.

However, Doyle and Brown (2000) reported that simulations can also create anxiety and frustration in students, particularly when there are periodic administration difficulties with the running of the game. In these cases, student frustration can have a negative effect on their learning. Wolfe & Chacko (1983) and Jaffe & Nebenzahl (1990) also reported on the impact of group size and group cohesion on student achievement and satisfaction. A group size of three appears to be most effective and group cohesion is often more important than how motivated individual team members were.

Finally, students can feel a lack of control when they undertake a simulation since they must absorb a relatively large amount of information in a short period of time, and then act upon it in a way that leads to successful outcomes. Walters & Coalter (1997) argued that individual characteristics, such as risk propensity, need for achievement, and locus of control will influence engagement and satisfaction; however, limited additional research has been conducted into the effects of negative emotions and negative emotional experiences during the simulation process, and how these emotions and experiences affect learning. Where it is discussed in the literature, the general conclusions are that the instructor must be actively involved with the game, well prepared and organised, willing to provide support and assistance, and careful to show the relationships between learning in the game and key course concepts and outcomes (McKenney & Dill, 1966; Knotts & Keys, 1997). In other words, a positive overall simulation experience is more likely to occur when instructors ensure that the additional pillars mentioned above are built in.

Research method

Research purpose and objectives

It is widely acknowledged that marketing educators must strive to provide students with an educational experience that prepares them for the world of work. A marketing education cannot simply involve the acquisition of a body of knowledge; it must also make students more employable by endowing them with work-relevant skills and competences. The marketing simulation game seems to provide an excellent opportunity to deliver valuable skills through a medium that students find highly engaging – in other words, an environment in which students are primed to learn because of their positive affective response to the educational experience. The project investigates the validity of this important assertion.

The overall purpose of the study was to understand better how students perceive and respond to simulation games, in order to make more effective use of simulations in the curriculum. An important proposition to be investigated is that students generally have a positive affective response to simulation games, and that this primes them to respond well cognitively. Hence, the enjoyable, competitive atmosphere of the game provides a strong motivation for students to learn about both

specific marketing topics (notably consumer behaviour and target marketing, in TMG!) and about general business matters (notably profit & loss analysis, and forecasting).

Specific objectives concern the differential responses of different categories of students to simulation games. We hypothesise that there may be differences in response between different demographic groups (male/female, ethnic background, and so on), between those with more or less employment experience, between those with different prior educational experiences (for example, traditional or vocational school-leaving qualifications), and between those from different cultural backgrounds. Prior research has indicated that student perceptions of the effectiveness of learning methods can vary with such demographic characteristics (Brennan and Ahmad 2005).

Sampling and data collection

A multi-part questionnaire, administered to cohorts of students at the University of Northampton and Middlesex University, asked students who have played TMG! to rate the learning value of simulations in relation to other learning methods, and measured student perceptions of their own affective and cognitive responses to playing the game. The questionnaire employed in this study was suitably adapted from questionnaires used successfully by the co-researchers previously to investigate student perceptions of the case study method, and of educational drama, on marketing courses (Brennan and Ahmad 2005; Brennan and Pearce 2008). The survey was administered in a classroom session at the end of the module on which TMG! had been used. For the great majority of the respondents (90%) this had been their first experience of playing a business or marketing simulation game.

The analysis presented here is based on data collected from a total of 137 students (32 from the University of Northampton and 105 from Middlesex University). The demographic characteristics of the respondents to the questionnaire are shown in Table 1. The sample represents the wider population of undergraduate students at the two universities fairly well. There is an approximate balance between male and female respondents; the age distribution represents a characteristic mix of traditional young undergraduates aged in their early 20s (in the final year), and a reasonably large number of mature students. The diversity of the sample in terms of ethnic origin reflects the typical ethnic mix of post-1992 universities in London and the south-east of England. A substantial minority of the respondents received their secondary education outside the UK.

Table 1: Respondent demographics

		Frequency	Percentage
Gender (n=137)	Male	76	56
	Female	61	44
Age (n=137)	20-21	51	37
	22-23	63	46
	24 or older	23	17
Ethnic origin (n=136)	White	50	37
	Asian or Asian British	35	26
	Black or Black British	33	24
	Other	18	13
Secondary education (n=137)	In the UK	86	63
	Outside the UK	42	31
	Partly in UK, partly outside	9	6

Table 2 shows that a substantial minority of the respondents claim to have had full-time work experience (defined on the questionnaire as working full-time for the same employer for more than six months). All but a handful of respondents claimed to have worked part-time, and 65% were in part-time employment when they completed the questionnaire; the modal category for part-time employment was between 10 and 20 hours per week. As would be expected, the older respondents were more likely to have had full-time work experience than the younger respondents (61% of those aged 25 or over had full-time work experience, compared with 29% of those aged 21 or 22).

Table 2: Respondent work experience

		Frequency	Percentage
Have you ever worked full-time for more than 6 months? (n=136)	Yes	57	42
	No	79	58
Have you ever worked part-time? (n=137)	Yes	129	94
	No	8	6
Are you working part-time now? (n=137)	No	49	36
	Yes, < 10 hrs p week	20	15
	Yes, 10-20 hrs p week	56	41
	Yes, > 20 hrs p week	12	9

Discussion of findings

In the discussion of the survey findings we first compare student perceptions of different learning methods (including ‘The Marketing Game!’), and then concentrate on responses concerning ‘The Marketing Game!’, looking initially at the mean responses from the whole sample and subsequently at comparisons between different categories of student (men/women, and so on).

Table 3: Rank order of student perceptions of learning method effectiveness

Learning method	Rank	Mean score
Business game (e.g. The Marketing Game!)	1	4.21
Question & answer sessions in seminars	2	4.06
Assignment-based research	3	4.02
Discussions with other students	4	3.88
Private reading (e.g. textbooks, articles)	5	3.78
Case study analysis	6	3.75
Group work	7	3.64
Presentations	8	3.60
Lectures	9	3.56
Self-guided research	10	3.55
Watching a video	11	3.22
Computer-based learning (e.g. Blackboard)	12	3.16

1. Question asked: “What is your opinion of these learning methods? Rate each learning method on a scale from 1 to 5 where 1 means ‘I never learn anything when this method is used’ and 5 means ‘I always learn a lot when this learning method is used’.
2. Mean score is on a scale from 1 ‘never learn anything’ to 5 ‘always learn a lot’.

Table 3 shows the mean score (on a 1 to 5 scale) and the rank (calculated from the mean scores) for 12 learning methods. For all of these learning methods the mean score is significantly above the scale mid-point of 3.0 (i.e. using a t-test we can reject the hypothesis that the true mean is 3.0). The ‘business game’ learning method is easily ranked first. However, we should observe that this research was conducted with classes who had just finished playing ‘The Marketing Game!’, and for most of the students this had been their first experience of a business game, so that their responses were probably

influenced by the novelty and immediacy of having recently experienced the game. Nevertheless, we can state with high confidence that students believe that they learned a lot from playing the game and found it to be highly effective when compared with other learning methods. Figure 1 illustrates this point further, showing that nearly 50% of respondents claimed that they ‘always learn a lot’ when using a business game. Again, we would advocate caution in interpretation, since for most respondents this was their first experience with such a game. Nevertheless, the principal risk of interpretation here would seem to be that the degree of learning that the respondents claim to have experienced during the game may be exaggerated because of the immediacy and novelty of the experience. It is very unlikely that the respondents’ opinions about the game would change from strongly positive to neutral or negative with greater distance from the experience of playing the game.

Figure 1: Student perceptions of learning method: Business game (e.g. The Marketing Game!)

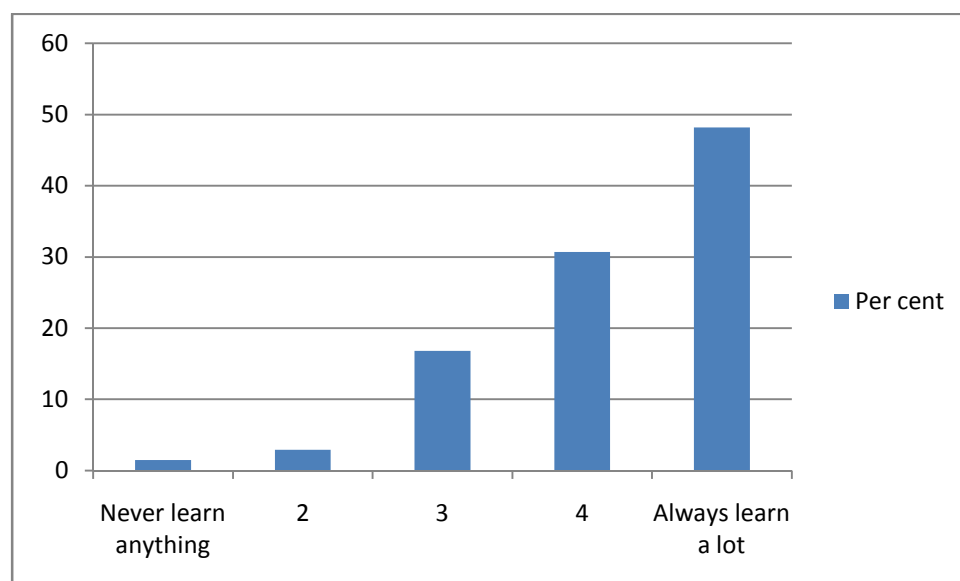


Table 4: Rank order: student perceptions of learning benefits from business games

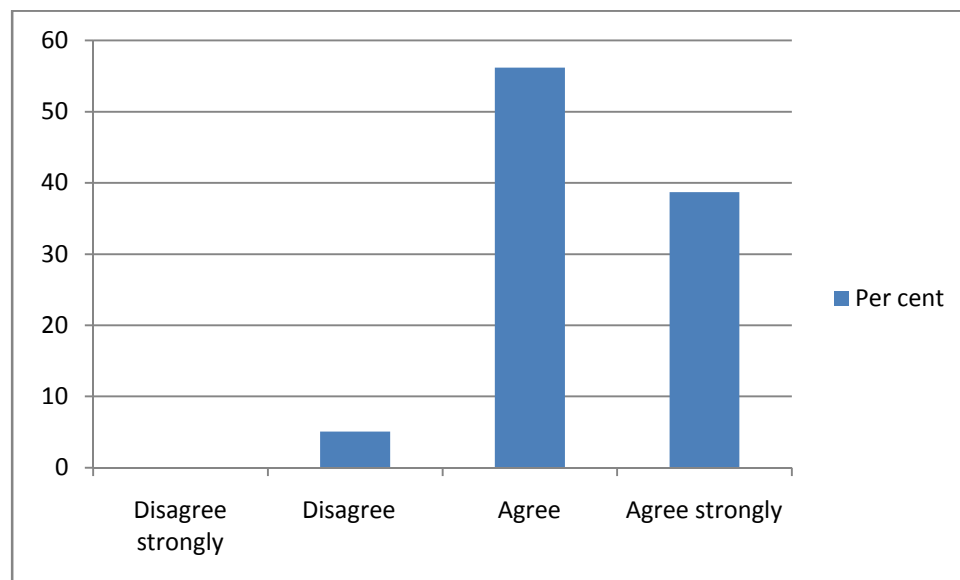
To what extent do you agree that:	Rank	Mean score
‘Business games are a good way to practise using analytical tools’	1	3.34
‘Business games help me understand how business decisions are made’	2=	3.32
‘Business games illustrate how business/marketing strategy works in the real world’	2=	3.32
‘Business games help me understand theoretical concepts’	4	3.30
‘Doing analysis for business games helps me to develop useful business skills’	5	3.25
‘Working on business games has helped me to develop my team working skills’	6	3.24
‘Working on business games has helped me to develop my skills in business analysis’	7	3.23
‘I usually contribute to business game discussions in class’	8	3.21
‘Working on business games gives me the confidence to express opinions’	9	3.11
‘Business games are a useful way to discuss business problems in class’	10	3.08

1. Mean score is on a scale from 1 ‘disagree strongly’ to 4 ‘agree strongly’

The next step in the analysis was to investigate in what ways the students felt that their learning had benefited from playing ‘The Marketing Game!’ This was measured using a battery of 23 Likert-scale items adapted from a questionnaire used by Brennan and Ahmad (2005) to study student perceptions of the case study method. The ten items with the highest mean scores are shown in Table 4. The scores for all of the items shown in Table 4 are significantly above the scale mid-point of 2.5 (i.e. using a t-test we can reject the hypothesis that the true mean is 2.5). To illustrate the responses visually, we present a bar chart for the first item in Table 4 (‘Business games are a good way to practise using analytical tools’) in Figure 2; the bar charts for the first few items in Table 4 are all very similar to Figure 2, although for most of the variables – in contrast to the responses shown in Figure 2 - there were one or two ‘disagree strongly’ responses.

From these results we conclude that the respondents were strongly of the opinion that ‘The Marketing Game!’ had been a useful learning experience, and that the nature of the learning included many experiential components, such as understanding how business decisions are made, improving team-working skills, and illustrating how strategic decisions are made in the real world.

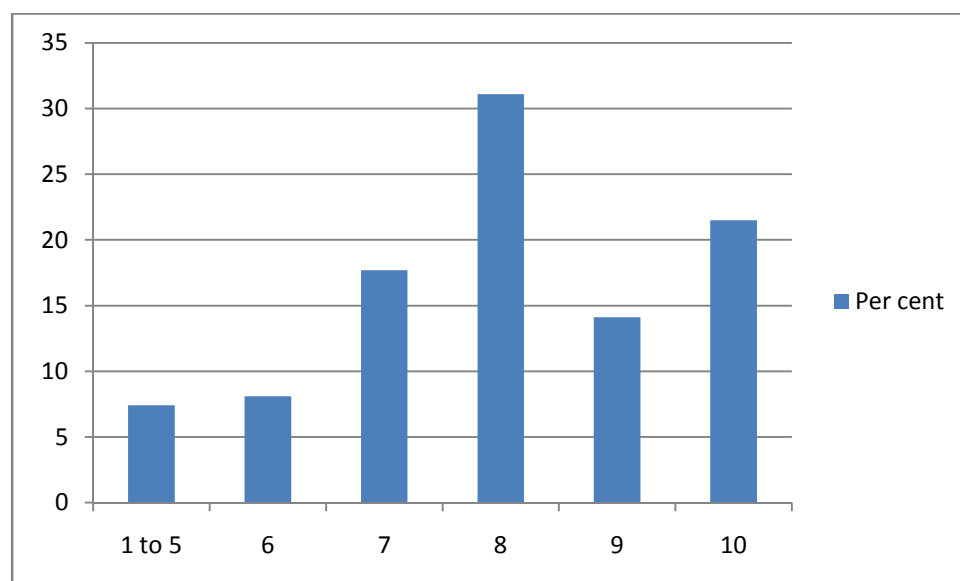
Figure 2: “Business games are a good way to practise using analytical tools”



We were also interested to establish how students responded affectively to ‘The Marketing Game!’ Figure 3 illustrates the responses to a question about the enjoyment of ‘The Marketing Game!’ The great majority of the responses, on a scale from 1 (low enjoyment) to 10 (high enjoyment) were between 7 and 10, with 8 as the modal response and a mean response of 8.01. Clearly, the results from our survey indicate that our sample of students believed that the game was an effective learning method, which delivered a wide range of learning benefits, and which they enjoyed playing.

We now move on to examine differences in perception between sub-groups within the sample.

Figure 3: “Using a scale from 1 (did not enjoy at all) to 10 (absolutely great!) indicate how much you enjoyed ‘The Marketing Game!’”



1. Mean score on 1-10 scale = 8.01, standard deviation = 1.48

Differences in response between categories of students

An exploratory factor analysis (using principal factor analysis and varimax rotation) conducted on the 23 items used to measure student perceptions of learning benefits identified six factors with eigenvalues greater than 1.0, explaining 63% of the variance in the data. The two factors explaining the largest percentage of the variance (40% in all) were interpreted, based on the items of which they were comprised, as “analysis” (28% of variance) and “skills” (12% of variance). The mean score (on a scale from 1 to 4 as defined in Table 4) for “analysis” was 3.22, and the mean score for “skills” was 3.06. These factors were used in the subsequent analysis to test differences between sub-groups of the sample. The results of the between-group comparisons are shown in Table 5.

Table 5: Comparative analysis of responses to ‘The Marketing Game!’

Comparator variable	Enjoyment		Learning: Analysis		Learning: Skills	
	t-value	significance	t-value	significance	t-value	significance
Gender						
Men/Women	0.93	n.s.	0.98	n.s.	1.31	n.s.
Ethnicity						
White/Asian	1.87	0.07	1.92	0.06	2.56	0.01
White/Black	0.21	n.s.	1.13	n.s.	1.33	n.s.
Asian/Black	1.36	n.s.	0.53	n.s.	1.39	n.s.
Secondary education						
In UK/Outside UK	0.91	n.s.	1.76	0.08	0.82	n.s.
Entry qualification						
A levels/GNVQ	0.47	n.s.	0.47	n.s.	0.32	n.s.
Worked full-time?						
Yes/No	0.57	n.s.	0.57	n.s.	1.67	0.09

Perhaps the most striking characteristic of Table 5 is that few of the between-group differences are statistically significant. That is to say that, in most cases, one cannot reject the null hypothesis that there is no difference between the mean scores of the categories. This suggests that, while there may be subtle differences between the responses of different student categories to the game,

overwhelmingly *all* categories of student perceive it to be a beneficial and enjoyable learning method that delivered learning benefits in terms of both analysis and skills. There is some evidence that students who described their ethnicity as ‘Asian or Asian British’ were significantly more positive about the game than students who described themselves as ‘White’ (note that the Asian category does not include ‘Chinese’, since this was included as a separate category, but there were too few respondents in this category to use it for analysis). From Table 5 we can see that there may be some difference between students who were educated at secondary level in the UK, and those who were educated outside the UK (the latter recorded higher scores), and between those with and without full-time employment experience (those with full-time experience recorded higher scores).

There is some evidence in our data of covariance between age, full-time work experience, and a positive response to ‘The Marketing Game!’ We observed above that age and full-time work experience are correlated, and Table 5 shows a weak association between full-time work experience and a positive response to the game. In Table 6 we show the correlation coefficients between the factors “analysis” and “skills”, and the variables ‘age’ and ‘enjoyment’. Enjoyment is highly correlated with both “analysis” and “skills”, consistent with the hypothesis that a positive affective response to the game is associated with a strong cognitive response. Age shows no significant correlation with “skills”, but a moderately strong correlation with “analysis”. This provides some tentative support for the hypothesis that older students found the game to be a more effective learning experience, particularly for learning about analytical methods, than younger students.

Table 6: Correlations of perceived learning, age and enjoyment of ‘The Marketing Game!’

Variable 1	Variable 2	Correlation coefficient	Significance
Learning: Skills	Age	0.07	n.s.
Learning: Skills	Enjoyment	0.476	0.00
Learning: Analysis	Age	0.194	0.03
Learning: Analysis	Enjoyment	0.505	0.00

Conclusion

Simulation games are not an undiscovered educational technique. Nevertheless, we believe that the potential educational contribution of marketing simulation games has been far from fully exploited. In particular, from our own practice we have observed that this is one of the most effective tools for engaging students actively in the learning experience. Many of the students who play marketing simulation games become absorbed in the game, determined to improve their team’s performance, and realise quickly that in order to achieve good performance they need to understand and apply important marketing principles. The results from the survey of students support these contentions. Of course, we must emphasise that what we have measured are student *perceptions* of their enjoyment, overall learning from, and components of learning from a single marketing simulation game. These clearly represent limitations on this study. In addition, the sample of students was taken from only two universities in the south-east of England, and the generalisability of the findings is therefore strictly limited.

Within those limitations we have confirmed the general findings from earlier literature that students enjoy simulation games and believe that they learn a lot from them. Going beyond these earlier studies, we have provided some evidence that student perceptions of their learning from simulation games seem to be particularly strong in terms of aspects of analysis and aspects of skill development.

Of particular concern is the use of simulation games with an increasingly diverse population of students in the UK. The once homogeneous UK higher education body of students has become increasingly heterogeneous, partly reflecting the increasing diversity of UK society in general, and partly reflecting government policy to widen access to higher education. It is important for marketing educators to understand how different categories of student are likely to respond to marketing simulation games. Our findings in this respect are encouraging, since there did not seem to be marked differences between different demographic categories of students in their response to the game. There was some limited evidence that 'Asian or Asian British' students, students who received their secondary education outside the UK, and mature students had more favourable attitudes towards the game. However, these findings are tentative and further research would be needed to establish how valid they are.

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